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Cover: American alligator, *Alligator mississippiensis*, attempting to consume a Florida red-bellied cooter, *Pseudemys nelsoni*. The cooter was eventually released unharmed. Photographed in Everglades National Park on 3 April 2015 by Stephen L. Barten, D.V.M.

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Notes on the Herpetofauna of Western Mexico 12: Herpetofauna of a Temperate Forest in Mazamitla, Southeastern Jalisco, Mexico

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Abstract

From June 2012 to December 2014, we conducted several surveys at a locality known as Barranca El Tecolote, in the municipality of Mazamitla, Jalisco, Mexico. Working on a date list of the herpetofauna of the area, a total of five species of amphibians and 14 reptile species have been found. Nine of these species are protected by the Mexican environmental law NOM-ECOL-059, and several more fall into a high category of vulnerability. Moreover, two snake records (*Geophis petersii* and *Crotalus pusillus*) represent local range extensions. Notwithstanding the relatively small area sampled, the species richness and endemism is considerable. The increase in local human activities, such as land conversion and illegal logging and hunting, constitute the nearest menace to the biodiversity of the area. Likewise, we noticed a widespread aversion by the residents to many of the native amphibians and reptiles due to baseless beliefs, often resulting in the sacrifice of harmless species.

Resumen

Entre junio de 2012 y diciembre de 2014, realizamos varios muestreos en la localidad conocida como Barranca El Tecolote, en el municipio de Mazamitla, Jalisco, México. A la fecha, se han registrado un total de cinco especies de anfibios y 14 especies de reptiles. Nueve de esas especies están protegidas por la Norma Oficial Mexicana NOM-ECOL-059, y muchas más caen dentro de la categoría alta de vulnerabilidad ambiental. Por otra parte, dos registros de serpientes (*Geophis petersii* y *Crotalus pusillus*) representan ampliaciones de distribución para el interior del estado. No obstante la relativamente pequeña área de estudio muestreada, la riqueza específica y la cantidad de endemismos es considerable. El incremento en las actividades humanas locales, tales como la conversión de tierras, la caza y la tala ilegal, constituyen la amenaza más próxima para la biodiversidad del lugar. Del mismo modo, los autores advertimos una aversión extendida de los pobladores hacia muchos de los anfibios y reptiles nativos, debido a creencias infundadas, lo cual deriva en el sacrificio de especies completamente inofensivas.

Introduction

Until recently, the publications on the herpetofauna of the Mexican state of Jalisco were scarce, with the vast majority of the literature being checklists of tropical deciduous forests in the coastal region (García and Ceballos, 1994; Ramírez-Bautista, 1994; Cruz-Sáenz et al., 2013) and the surroundings of Guadalajara city (Ponce-Campos and Huerta-Ortega, 2004; Reyna-Bustos et al., 2007; Cruz-Sáenz et al., 2008; Cruz-Sáenz et al., 2011). Lately, some other works have attempted to document the herpetofauna within the state (Flores-Cobarrubias et al., 2012; Santiago-Pérez et al., 2012). Added to this, an increasing number of individual distributional records have been playing a significant role in the knowledge of amphibian and reptile species richness along western Mexico (e.g., Ponce-Campos, 2009; Rosas-Espinoza et al., 2013; Ahumada-Carrillo, 2014).

However, literature is lacking on the herpetofauna of the inner portions of Jalisco, especially the northern or eastern regions and temperate zones (Cruz-Sáenz et al., 2009). The aim of this research is to provide the first summarized list of amphibians and reptiles of the Sierra del Tigre, in the southeastern portion of Jalisco state.

Materials and methods

Study site

The Barranca El Tecolote (also known as Barranca El Volantín) is in the municipality of Mazamitla, adjacent to the municipality of Valle de Juárez, in southeastern Jalisco (19°54'43.25"N, 102°59'3.52"W), between 2185 and 2560 masl (Figure 1). This area is part of the Sierra del Tigre, a highland region situated south of Lake Chapala, between Sayula Lagoon and the states of Michoacán and Colima (Gobierno de Jalisco, 2010).

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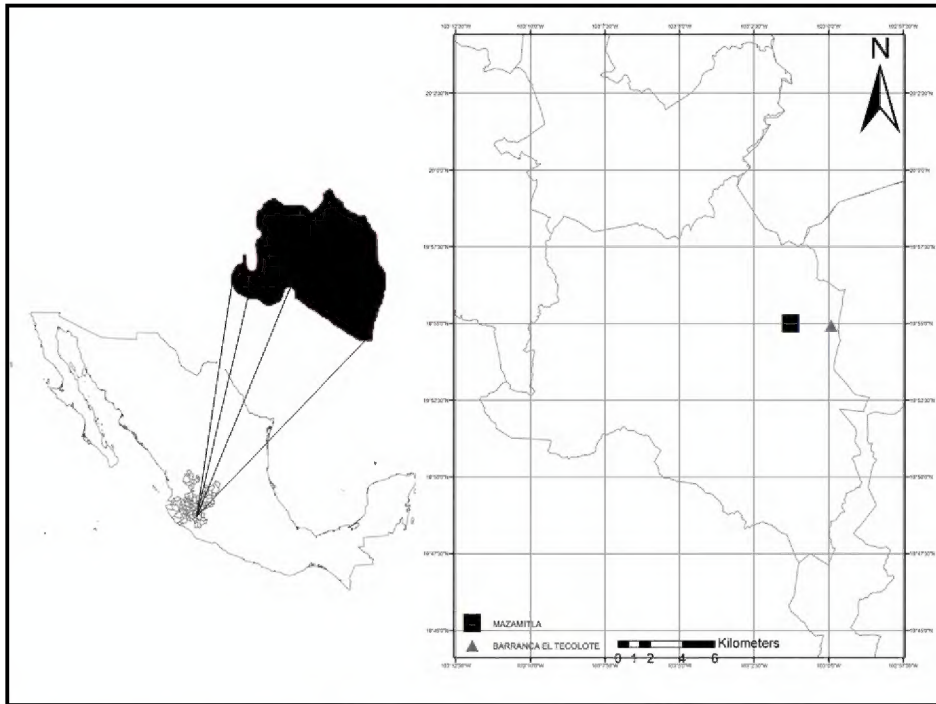


Figure 1. Location of the study site in Mazamitla, Jalisco, Mexico.

The study site is part of an *ejido* (a communal piece of land) called Ejido La Estacada. By 2010, the 16.85-ha site was granted by the Mexican Government the status of Unidad de Manejo para la Conservación de la Vida Silvestre (Wildlife Management Unit, UMA) (register number SEMARNAT-UMA-EX-337-JAL), devoted to ecotourism, wildlife research and environmental education activities.

According to the classification of Köppen modified by García (1988), climate is temperate subhumid with a summer rainy season and low thermal oscillation (Cb(w2)(i')g). Mean annual temperature is 16°C (60.8°F) and annual rainfall 935 mm (Ruiz-Corral et al., 2012). There are two vegetation types present here: pine-oak forest, which covers most of the area, and gallery forest, found along the canyon, where a perennial stream flows down to the flatlands of Valle de Juárez (Figures 2 and 3). The pine-oak forest is composed of *Pinus devoniana* (Pinaceae; Michoacán Pine / *Pino Blanco*), *Pinus leiophylla* (Pinaceae; Smooth-leaved Pine / *Ocote Chino*), *Quercus* spp. (Fagaceae; Oaks / *Encinos, Robles*), *Arbutus glandulosa* (Ericaceae; Mexican Strawberry Tree / *Madroño*) and *Alnus* sp. (Betulaceae; Alder / *Aile*), among various herbaceous plants. The gallery forest is composed of the following dominant flora: *Quercus magnoliifolia* (Fagaceae; Oak / *Encino Amarillo*), *Oreopanax* sp. (Araliaceae; *Oreopanax* / *Mano de León*), *Crataegus mexi-*

cana (Rosaceae; Mexican Hawthorn / *Tejocote*) and many mosses and pteridophytes. It is worth mentioning that some of these plants, like *Alnus* sp. and *Oreopanax* sp., are elements typically found in cloud forests (Rzedowski, 2006).

Methods

From June 2012 to December 2014, we conducted 16 visits of two to three days each to the study site, with variable sampling effort, covering virtually each month of the year and both vegetation types present there. We performed diurnal (~0900–1300 h) and nocturnal (~2000–2300 h) surveys, searching actively and directly on the ground, among leaf litter and under rocks and logs, helped with herpetological hooks, flashlights and collecting bags or boxes to transport specimens for further determination (Karns, 1986). Collected specimens were released after being identified and photographed. Determination and taxonomy followed the criteria of Smith and Taylor (1945, 1948, 1950), Köhler and Heimes (2002), Smith et al. (2002), Goyenechea and Flores-Villela (2006), Wilson and Townsend (2007), Liner and Casas-Andreu (2008), Hussam et al. (2009) and Poe (2013).

Results

We recorded five amphibian species, grouped in two orders, four families and four genera, and 14 reptile species in one order, eight families and 10 genera (Table 1). Three of the amphibian species are endemic to Mexico, while 12 reptile species are endemic to this country. Two snake records (*Geophis petersii* and *Crotalus pusillus*) represent local range extensions from their nearest known localities.

Regarding the conservation status of the species found, two amphibians are protected under the Mexican environmental law NOM-ECOL-059-SEMARNAT-2010 (SEMARNAT, 2010): one “Under special protection” (Pr) and one more as “Endangered” (A). Following the International Union for Conservation of Nature (IUCN, 2014), two amphibians hold the “Least Concern” (LC) category, two the “Vulnerable” category (VU) and one the “Endangered” (EN) category.

Seven reptile species are protected by NOM-ECOL-059-SEMARNAT-2010 (SEMARNAT, 2010): five “Under special



Figure 2. Pine-oak forest at the study site. Photograph by Francisco Javier Muñoz-Nolasco.



Figure 3. Gallery forest at the bottom of the Barranca El Tecolote. Photograph by Francisco Javier Muñoz-Nolasco.

Table 1. Amphibians and reptiles of Barranca El Tecolote, Mazamitla, Jalisco, Mexico. **Endemism:** EM = endemic to Mexico; NE = not endemic. **NOM** = protection status under NOM-ECOL-059-2010 (SEMARNAT, 2010): Pr = *Protección Especial* (Special Protection); A = *Amenazada* (Threatened). **IUCN** = protection status according to the International Union for Conservation of Nature (IUCN, 2014): LC = least concern; VU = vulnerable; EN = endangered; DD = data deficient. **EVS** = Environmental Vulnerability Score *sensu* Wilson et al. (2013a, b): low risk (3–9); medium risk (10–13); high risk (14–20). **Vegetation:** POF = pine-oak forest; GF = gallery forest. Nomenclature from Köhler and Heimes (2002), Smith et al. (2002), Goyenechea and Flores-Villela (2006), Wilson and Townsend (2007), Liner and Casas-Andreu (2008), Hussam et al. (2009) and Poe (2013).

	Order	Family	Species	Endemism	NOM	IUCN	EVS	Vegetation
Amphibia	Caudata	Plethodontidae	Bell’s Salamander, <i>Pseudoeurycea bellii</i> (Gray, 1850)	EM	A	VU	12	POF, GF
	Anura	Craugastoridae	Smith’s Pigmy Tropical Frog, <i>Craugastor hobartsmithi</i> (Taylor, 1937)	EM		EN	15	POF
		Eleutherodactylidae	Patzcuaro Peeping Frog, <i>Eleutherodactylus angustidigitorum</i> (Taylor, 1940)	EM	Pr	VU	17	GF
		Hylidae	Canyon Treefrog, <i>Hyla arenicolor</i> Cope, 1866	NE		LC	7	POF
			Mountain Treefrog, <i>Hyla eximia</i> Baird, 1854	NE		LC	10	POF, GF
Reptilia	Squamata	Anguidae	Transvolcanic Alligator Lizard, <i>Barisia imbricata</i> (Wiegmann, 1828)	EM	Pr	LC	14	POF
		Dactyloidae	Clouded Anole, <i>Anolis nebulosus</i> (Wiegmann, 1834)	EM		LC	13	POF
		Phrynosomatidae	Dugès’ Spiny Lizard, <i>Sceloporus dugesii</i> Bocourt, 1873	EM		LC	13	POF, GF
			Graphic Spiny Lizard, <i>Sceloporus grammicus</i> Wiegmann, 1828	NE	Pr	LC	9	POF, GF
			Light-bellied Bunchgrass Lizard, <i>Sceloporus scalaris</i> Wiegmann, 1828	NE		LC	12	POF
			Torquate Lizard, <i>Sceloporus torquatus</i> Wiegmann, 1828	EM		LC	11	POF
		Scincidae	Dugès’ Skink, <i>Plestiodon dugesii</i> (Thomiot, 1833)	EM	Pr	VU	16	POF, GF
		Colubridae	Lined Toluca Earthsnake, <i>Conopsis lineata</i> (Kennicott in Baird, 1859)	EM		LC	13	POF
			Bocourt’s Black-headed Snake, <i>Tantilla bocourti</i> (Günther, 1895 in Salvin and Godman, 1895–1902)	EM		LC	9	POF
		Dipsadidae	Peters’ Earthsnake, <i>Geophis petersii</i> Boulenger, 1894	EM	Pr	DD	15	POF
		Natricidae	Mexican Brownsnake, <i>Storeria storerioides</i> (Cope, 1865)	EM		LC	11	POF
			Black-necked Garternake, <i>Thamnophis cyrtopsis</i> (Kennicott, 1860)	EM	A	LC	7	POF, GF
		Viperidae	Black-tailed Rattlesnake, <i>Crotalus molossus</i> (Cope, 1864)	EM	Pr	LC	8	POF, GF
			Tancitaran Dusky Rattlesnake, <i>Crotalus pusillus</i> Klauber, 1952	EM	A	EN	18	POF

protection” (Pr) and two as “Endangered” (A). According to the IUCN (2014), 11 species are listed as Least Concern (LC), one as Vulnerable (VU), one as Endangered (EN) and one as “Data Deficient” (DD).

On the other hand, the Environmental Vulnerability Score (EVS) proposed by Wilson et al. (2013a, b) contrasts with these categories. Following this score, one amphibian falls into the low category of vulnerability to environmental degradation, two in the medium category and the other two in the high category. Four reptiles are in the low, six in the medium and four in the high category of risk.

Discussion

The herpetofauna of Jalisco comprises 185 species: 43 amphibians, of which 31 are endemic to Mexico, and 142 reptiles,

85 endemic to this country (Cruz-Sáenz et al., in press). Based upon these numbers, our records represent 11.63% and 9.86% of Jalisco’s amphibian and reptile richness, respectively. The number of species found in this study and their levels of endemism are not negligible, considering the relatively small area sampled.

Although no systematic samplings that allow comparisons were made, there appear to be differences in species richness between the two vegetal communities. Two amphibian species were found in pine-oak forest alone, one in gallery forest and two in both vegetal communities. Nine reptiles were recorded only in pine-oak forest and five in both pine-oak forest and gallery forest (Table 1).

Moreover, two snake records from this site represent local range extensions. Peters’ Earthsnake (*Geophis petersii*) (Figure 4)



Figure 4. Peters' Earthsnake (*Geophis petersii*). Photograph by Francisco Javier Muñoz-Nolasco.

has been recorded from Mexico City (type locality), central Michoacán and Sierra de Manantlán, Jalisco (Wilson and Townsend, 2007; Orozco-Uribe, 2009); there is also a new record from Guerrero (Carmona-Torres and González-Hernández, 2014). The presence of this snake in Mazamitla extends its distribution 130 km northeast from Sierra de Manantlán and 126 km northwest from the Michoacán locality records.

The known distribution of the Tancitaran Dusky Rattlesnake (*Crotalus pusillus*) (Figure 5) comprises some scattered locations in southwestern Michoacán, southern Jalisco and Colima (McCranie, 1983). The nearest record of *C. pusillus* is from

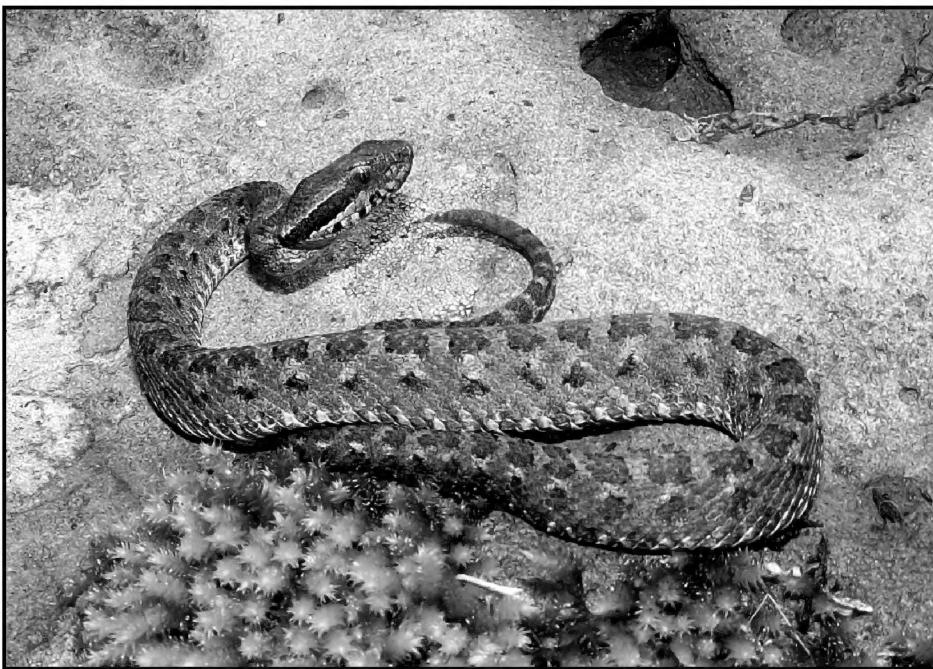


Figure 5. Tancitaran Dusky Rattlesnake (*Crotalus pusillus*). Photograph by Francisco Javier Muñoz-Nolasco.



Figure 6. Patzcuaro Peeping Frog (*Eleutherodactylus angustidigitum*). Photograph by Francisco Javier Muñoz-Nolasco.

Quitupan municipality (19.42630°N, 102.57527°W; 2288 masl) (Reyes-Velasco et al., 2008). Our record extends its distribution 67.86 km northwest from this locality and 75 km northeast from another locality in Nevado de Colima, Jalisco.

This work aims to provide a base for more detailed herpetological studies that allow better conservation efforts. At present, the increase in local human activities, such as land conversion, hunting and illegal logging, constitute the nearest threats to the biodiversity of this region. Added to this, we have noticed a widespread aversion on the part of local residents to many of the native amphibians and reptiles, due to baseless beliefs, often resulting in the sacrifice of harmless species. There is an urgent need to sensitize the local citizens to the importance of the native herpetofauna. Along with scientific research, this may be the solution or, at least, a way to palliate these issues.

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Status and Distribution of Freshwater Turtles in Pakistan

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Introduction

Pakistan is a predominantly water-deficient temperate country. Three-fourths of its terrain is mountainous, with the Himalayas occupying much of the north and west. The remaining quarter constitutes the Indus Plain, which includes four permanent deserts (Figure 1). The Indus Valley is a watershed of the Himalayas; water from the mountains is drained by five rivers: the Indus, Jhelum, Chenab, Ravi and Sutlej. These flow through the upper Indus Valley, eventually all joining into the Indus River, which runs south to drain into the Arabian Sea. The rivers while in the Himalayas are narrow and fast, washing down debris which is deposited in the river beds in the plains, as they enter the upper Indus Valley. There the rivers are heavily silted and meander through the valley with wide floodplains. Along the river courses can be found a string of Ramsar recognized wetlands, supporting local populations of amphibians and reptiles.

During the short monsoon spell (July–August), the valley virtually turns into a boundless lake, as the rivers swell out of their low banks. It is the boom period for the local species, which are carried far and wide in the valley, colonizing new sites and places. However, during the long dry season that follows (October–May) water recedes leaving shallow ponds, puddles and lakes. Ecogeographically the Indus Valley is the western wing of the great Indo-Gangetic-Brahmaputra floodplains. Thus the countries of India and Pakistan share most of their amphibious species (Khan, 1980, 1999, 2006).

Recently accumulated data and observations on chelonians of the Indus valley (Minton, 1962, 1966; Mertens, 1969; Khan 2003; Khan and Mirza, 1976; Khan and Tasnim, 1990; Mirza and Ali, 1972; Webb, 1980, 1982; Auffenberg, 1980; Auffenberg and Ahmed, 1991) adds much to Boulenger’s (1890) and Smith’s (1931) records.

This paper provides an overview of the distribution and a list

of the freshwater turtle fauna of the Indus Valley, with notes on morphology, natural history and threats.

The inland turtles of Pakistan belong to two families: the pond turtle family Emydidae includes the genera *Geoclemys*, *Hardella* and *Pangshura*; the softshell family Trionychidae includes the genera *Nilssonina*, *Chitra* and *Lissemys*.

Habitats of freshwater turtles in Pakistan

Turtles of the genera *Nilssonina* and *Chitra* are confined to deep rivers and lakes. Other species are mostly confined to shallow marginal waters with emergent vegetation along canals, ponds and puddles.

Several wetlands run along the course of the Indus River, associated with dams. Saline lakes are scattered in the upper and lower Indus valley. Mangrove swamps and intertidal mudflats found in the Indus Delta are rich in grasses and floating vegetation. All of the above are permanent natural refuges for the amphibious vertebrate fauna of the region.

Threats

Habitat loss is one of the prime threats to inland turtles in Pakistan. During the summer rainy season (July–September), silted rivers overflow, converting the Indus Valley into a huge, boundless lake. Floodwaters carry turtles far and wide in the valley. When the waters recede, stranded turtles scramble in search of suitable habitat, most of them missing their way back. Their hard bony armor ensures protection from scratches and bumps sustained while crawling long distances on hard stony soils, but many are crushed under vehicles and trains as they



Figure 1. Pakistan: Ramsar recognized wetlands.

Table 1. Ramsar recognized wetlands in Pakistan (see Figure 1).

Ramsar name	Ramsar number	Number in Table 2
Thandhar Wala	97	2
Tanda Dam	98	1
Kinjhar Lake	99	10
Drigh Lake	100	7
Haleji Lake	101	13
Chasma Barrage	816	3
Tunsa Barrage	817	5
Uchhali Complex	818	4
Hab Dam	1064	9
Indus Dolphin Reserve	1065	6
Jubho Lake	1067	14
Norri Lagoon	1069	11
Dah Akro II	1283	8
Indus Delta	1284	12
Runn of Kutch	1285	15

Table 2. Pakistan freshwater turtles: habitat, feeding habits, reproduction, behavior and distribution. IUCN Red List: VU = Vulnerable; LR:nt = Lower Risk, near threatened; LR:lc = Lower Risk, least concern. CITES Appendices: I = species most in danger of going extinct, ban all commercial international trade; II = Species that don't qualify for Appendix I, but might in the near future if trade isn't strictly controlled. See Table 1 for Ramsar site numbers.

Species	IUCN/ CITES	Habitat / niche	Food	Clutch size	Incubation period	Behavior	Ramsar sites inhabited
<i>Geoclemys hamiltonii</i>	II	Shallow ponds, pools, lakes, rivers	Snails, insects, larvae, crayfish	5–15	169–213 days	Shy	5, 6, 7, 8 , 11
<i>Hardella thurjii</i>		Pools, ponds, canals, salt water	Herbivore	8–13	200–273 days	Shy	10, 11, 12, 13
<i>Pangshura smithii</i>	LR:nt/II	Lakes, ponds puddles, canals	Herbivore / carnivore	7–8	75–112 days	Shy	7, 8, 10, 11, 12, 13
<i>P. tecta</i>	LR:lc/I	Standing and slow-moving water	Herbivore / carnivore	8–12	125–144 days	Non-aggressive	7, 10, 11, 12, 13
<i>Nilssonia gangeticus</i>	VU/II	Rivers, lakes, permanent ponds	Omnivore: birds, fish, carrion, cannibal	25–40	25–35 days	Very aggressive	5, 6, 7, 8, 12, 13
<i>N. hurum</i>	VU/II	Rivers, lakes, permanent ponds	Omnivore: birds, fish, carrion, cannibal	20–30	25–35 days	Aggressive	5, 6, 7, 8, 10, 11.
<i>Chitra indica</i>	VU/II	Sandy shallow river margins	Fish, crustaceans, snails	60–120	22–40 days	Aggressive; ambushes prey	5, 6, 7, 8, 9, 10
<i>Lissemys punctata</i>	II	Lakes, rivers, shallow pools,	Herbivore / carnivore	6–14	30–40 days	Shy; aggressive	2, 3, 4, 5, 6, 7, 8, 10, 11

cross roads and railways. Often wandering turtles fall into the hands of uncaring people who may pelt them with stones, mortally injuring them just for fun (Khan, 2006).

Other lingering threats are from turtle-eating tribes and a host of carnivores: jackals, foxes, mongooses, falcons, crows, vultures, varanids, snakes, etc. Turtles are devoured as adults, as hatchlings and while still in the egg stage. Natural disasters play a role as well; often nests are soaked by floods or rainwater, killing the developing embryos inside the eggs. To guard against this is probably why most of the freshwater turtles lay eggs in two clutches, one pre-monsoon and the other in the post-monsoon period.

Turtle meat is not widely consumed in Pakistan, except for some nomadic tribes living along river courses. However, local *hakims* (physicians) may suggest turtle meat or soup as medicine for weakness, etc.

The greatest present-day threat comes from the neighboring Chinese food markets, where chelonians are sought for their supposedly medicinal as well as nutritional values. Now that China's native turtle populations is dwindling, greedy traders from Bangladesh, Pakistan, India, and Nepal, without considering the harm they are doing to turtle populations in their countries, illegally export truckloads of turtles (Lau et al., 1997). Even species from New Guinea and the USA have been reported in Chinese food markets. Human greed for food, health and wealth is playing havoc with turtle populations throughout Southeast Asia.

In Pakistan turtles are well on the road to extinction, following the lead of *Crocodylus palustris* and *Gavialis gangeticus*, that once were widely represented in the Indus Valley (Khan and Tasnim, 1990; Khan, 2006). To stop exploitation of these natural resources stringent laws and strong enforcement agencies are needed. Such are very, very rare in this part of the world!

The greedy traders stuff the turtles cold-heartedly into trucks, vans etc., as if they were stones and bricks. The poor creatures succumb during transportation. Piles of stinking dead bodies of turtles are unloaded along the Karakorum Highway, telling the story of the brutal treatment the poor animals have suffered.

Key to the inland turtles of Pakistan

- Shell without soft covering; a neural ridge present ----- 2
Shell with soft covering; no neural ridge----- 5
- Neural ridge three knobbed, shell, head and limbs spotted with yellow----- *Geoclemys hamiltonii*
No spotting as above----- 3
- Fourth central lamina not longer than wide; yellow stripes on head ----- *Hardella thurjii*
Fourth lamina distinctly longer than wide; no stripes on head ----- 4
- High shell, with a prominent knobbed neural ridge; plastral laminae light, with dark spots----- *Pangshura tecta*
Low shell, feeble neural ridge, plastral laminae black, with light edges----- *Pangshura smithii*
- Plastron with cutaneous moveable flanges, seven plastral callosities----- *Lissemys punctata*
No moveable plastral flanges, four plastral callosities----- 6
- Head broad, massive, green with black markings ----- 7
Head narrow, grayish with dark-edged light stripes----- *Chitra indica*
- Alveolar surface of jaw raised at its inner marginal edge; head with black streaks; no ocelli on carapace of juveniles ----- *Nilssonia gangeticus*
Alveolar surface not raised, grooved at the symphysis; head marked with black and yellow; carapace of juveniles with four or more ocelli ----- *Nilssonia hurum*

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Notes on the Distribution of *Necturus maculosus* in Maryland and the Birth of Reenactment Herpetology

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In a bizarre event that could only have originated in Maryland, two authors (Lee, 1972; Lyons, 1972b) simultaneously report the first records of the mudpuppy, *Necturus maculosus*, in the state. This unique occurrence has not heretofore been discussed. Lee's article, consisting of three sentences, was published in the September 1972 issue of the *Bulletin of the Maryland Herpetological Society*. He states: "On the evening of 25 July 1972 I collected three adult mudpuppys [sic] from the Youghiogheny River near Sang Run, Garrett Co., Maryland" and that one specimen was catalogued into the collection of the Natural History Society of Maryland (NHSM 2770). (The others were later added as NHSM 2771-2772.) By contrast, Lyons's article, a comparatively lengthy and well-crafted piece of nature writing, was published in the September/October 1972 issue of *Maryland Conservationist*. In it Lyons repeatedly mentions a vaguely defined "we" (Lyons and, minimally, L. R. Franz) as the first to collect the species. Lyons does not provide a date of discovery—important one would think—but does claim, like

Lee, to have collected three specimens that were "transported to Baltimore." There is no mention of what became of them. Another oddity in the Lyons article is a picture with caption of D. S. Lee overturning a rock in "Ginseng Run where it empties into the Youghiogheny River." This is actually the point of collection, not the Youghiogheny itself, although Lee (pers. comm., 7 September 2013) states: "The critters came from the mouth of Sang Run (Ginseng Run) all within, I would say, 10–20 yards of the river itself. But obviously they were coming from the river itself." Lee is not mentioned again by Lyons. Lee (pers. comm., 30 October 2010) maintains that he is the sole discoverer; emails to Lyons and Franz on this subject went unanswered.

Casual observers of this situation might come to the conclusion, given the extreme brevity of Lee's note versus Lyons's lengthy account, that credit for the discovery of *Necturus* in Maryland should, on balance, go to Lyons et al. However, Lee's article was intentionally brief as a reaction (Lee, pers. comm.,

ca. 1982) to the excessive publicizing of the discovery of the green salamander, *Aneides aeneus*, in Maryland (Harris and Lyons, 1968a, b; Lyons, 1972a). Nonetheless, Lee (1976b) inexplicably cites Lyons (1972b) as authority, in addition to himself, for discovering *Necturus* in Maryland. Lee (1976b) also states that K. Hogden “has a photograph of a specimen [of *N. maculosus*] caught on a hook and line near the Casselman River bridge [US Route 40] . . .” Lee (pers. comm., 18 April 1994), further adds: “Kendrick Hogden was the science supervisor for one of the western [Maryland] counties (Allegany?) in the early 1970s. I did not see the photograph (he tried for a long time to relocate it for me with no success). However, I questioned him a number of times about it, and he was familiar with hellbenders and described an animal (size, color and gills) that was clearly *Necturus*. I don’t know if he knew the species or just knew it from books, but he knew it was a mudpuppy. Yes, I too find this odd. [Here Lee is referring to my comment (letter of 9 April 1994) that ‘I find it odd that hellbenders were found routinely at this locality, but that it took a fisherman to find the only mudpuppy.’] I also find it odd that there are no other records of *Necturus* in Maryland and wonder if I stumbled on some planted animals.”

However, of greater importance than establishing the rightful discoverer of *Necturus maculosus* in Maryland is the statement by Lyons (1972b) that A. W. Norden had found mudpuppy eggs in the Casselman River at the “Casselman River bridge” (the original bridge just north of what is now US Route ALT 40) sometime prior to the Youghiogheny River discovery. Once again, Lyons does not provide a date. And once again the casual observer will wonder why Lyons et al. did not focus their efforts on a known site of occurrence (Casselman River), rather than exploring an unknown one (Youghiogheny River). Norden (pers. comm., 25 February and 2 March 2015) confirms that he

did indeed find the eggs of *Necturus* more or less as described by Lyons (1972b). His best estimate for his observation is late spring or summer 1971. E. L. Thompson (pers. comm., 27 February 2015) is concerned that Norden may have confused the eggs of *Necturus* with those of the stonecat, *Noturus flavus*. However, Norden (pers. comm., 2 March 2015) assures me that they were amphibian eggs and not those of *N. flavus* or any other fish species in the Youghiogheny River basin.

Inexplicably, the reports of *Necturus* in Maryland were almost completely forgotten as soon as they were published, even by Lee himself (1973, 1976a). Committee . . . (1973), which Lee served on, also does not mention the species, nor does Ashton (1976). Harris (1975), aware of Lee (1972) but unaware of Lyons (1972b), states: “Its occurrence in the Casselman River (also Ohio Drainage) is possible.” It appears that the species is not mentioned again in the local literature until Brosnan (1984), who lists it as “B2” (of state significance).

On balance, it seems clear that Lyons’s piece is nothing more than a reenactment—a nearly complete fabrication and yet another stain on the reputation of a state that produced a work as fine as McCauley (1945) but has been headed in the opposite direction ever since.

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What You Missed at the March Meeting

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Thirty years ago one didn't hear much about the herp industry because by most definitions there wasn't one. More and more people became interested in the animals over the years, and that interest continues to grow. While we're usually happy about expanding the hobby, popularity has its downside. Greater interest means greater demand and more animals. Massive breeding operations have sprung up to serve the number of people that now want to keep a bearded dragon or have a pet ball python. The animals have become a commodity for many breeders and many of the keepers have no idea of proper husbandry.

Our March speaker wants to change that. Danny Mendez is host of the Urban Jungle Radio podcast and the Urban Jungle YouTube channel. For a quarter of a century he has kept and bred not only reptiles, but also fish, birds, amphibians and small mammals. He has worked as an animal keeper and herpetologist for zoos and a museum. A few years ago he left the zoo world to focus on conservation and wildlife rehabilitation. Along the way he made many appearances on radio and TV. Those experiences convinced him to start his own media outlets. He now broadcasts from many different animal shows as well as featuring expert guests and celebrities. He covers topics from conservation to correct husbandry.

A while back Danny began to consider the ethics of keeping animals, particularly reptiles. The past few years has seen reptile keeping come under attack from animal rights groups and various government entities. He says that we are currently going through a pivotal point in herpetology and perhaps we should begin policing ourselves before rules are written for us.

He wants us to treat our animals better, whether one is a breeder or a private keeper. He asks private keepers to think about goals and why one keeps animals. Are rack systems good



Danny Mendez. Photograph by Dick Buchholz.

for the animals? Might we discover new things about our animals if we keep them in much larger, more naturalistic cages? Rather than breed more reticulated pythons, perhaps we should concentrate on animals that are endangered or rare in the wild. Rather than breed for quantity, perhaps breed for quality. Can we provide enrichment for our animals? Why do we buy animals such as Meller's chameleons that have virtually 100% mortality in captivity? Do you have a veterinarian that specializes in reptiles and amphibians?

He didn't skip dealer responsibilities. While citing examples such as Jamaican boas that are common in captivity but rare in the wild, he

asked that breeders become less commercialized and look towards what can be done to save species in danger of extinction. He'd like to see more naturalistic displays at reptile shows and animals better cared for during shows. He wants dealers to represent the best of the hobby by engaging the public and being good examples of reptile husbandry. Why are dealers selling horned lizards when they are extremely difficult to keep alive in captivity?

We all know there are dedicated and conscientious dealers and breeders, and one would hope that most reading this are careful and concerned keepers, but Danny's talk should make us reconsider our efforts. He didn't bring up any easy topics during his talk, and he asked few easy questions, but Danny Mendez is a man on a mission. At dinner afterward he was gregarious and often funny, a likable person who is committed to changing some minds. With his radio podcasts and YouTube shows, he just might. If you'd like to hear Danny discuss his visit to the CHS, you can listen to his podcast titled "Pre-CRBE-Celebration." He reviews much of his talk and comments on his visit starting at about 42:27 minutes.

Herpetology 2015

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

HABITAT SELECTION BY HORNED LIZARDS

T. A. S. Newbold and J. A. MacMahon [2014, J. Herpetology 48(3):306-316] note that the degree to which microhabitat elements such as shade from shrubs are used by lizards and the relative importance of such factors compared to others (e.g., prey availability) remains poorly understood. The authors examined habitat associations of desert horned lizards (*Phrynosoma platyrhinos*) to evaluate the determinants of lizard occurrence using surveys along a shrub-steppe bajada in northwestern Utah. They then examined microhabitat preferences of lizards maintained in an experimental arena to explore further the potentially influential factors explaining habitat choice. Greater shrub cover, open understory, and greater cover by cryptobiotic soil crusts were the best predictors of lizard occurrence. While the role of soil crusts is unclear, these other factors may benefit lizards by providing open space for unhindered locomotion and opportunities for temperature regulation through sun/shade shuttling and burrowing. Ants, a primary food source, did not appear to be a significant determinant of *P. platyrhinos* occurrence. Within the experimental arena, lizards preferred high-shade microhabitats during the day (82% of day selections) and demonstrated strong preference for microhabitats with soil mounds overall (85% of selections). Soil mounds, which form naturally beneath shrubs, tended to warm more quickly in the morning when lizards basked to elevate body temperature, remained cooler in the early evening when high temperatures persisted, and were used as midday and overnight burrow sites. These studies highlight the important role of abiotic factors associated with vegetation as strong determinants of habitat selection by *P. platyrhinos*.

BOG TURTLES AND HABITAT ALTERATION

A. M. Sirois et al. [2014, J. Herpetology 48(4):455-460] note that bog turtles (*Glyptemys muhlenbergii*) are imperiled by habitat loss and degradation; yet, population responses to habitat management and restoration efforts have not been well documented because of the difficulties of studying this long-lived species. The authors compared bog turtle population demography and habitat use from 1994 to 2009 at two sites in Massachusetts: one site was managed for nonnative invasive species and natural succession (Site 1), and the other site was flooded from American beaver (*Castor canadensis*) activity resulting in an expansion of nonnative invasive plants (Site 2). A mark-recapture study involving 90 individual turtles indicated that survival rates and population sizes remained stable before and after habitat management at Site 1 where the extent of high suitable habitat remained the same, whereas population size and survival rates declined at Site 2 where the extent of low suitable habitat increased. Together, these results suggest that habitat management and restoration efforts can improve or maintain the status of bog turtle populations. This study supports the value of properly planned and enacted habitat management actions for this federally threatened and state endangered species.

PHYLOGENY OF THE GENUS *BITIS*

R. D. Wittenberg, R. C. Jadin et al. [2015, Organisms, Diversity and Evolution 15(1):115-125] note that assessing evolutionary relationships among wide-ranging species can be particularly beneficial to understanding speciation patterns and biogeography of taxa, with broad implications for conservation and applications for human health. Integrative phylogenetic analyses that incorporate multiple independent datasets (e.g., DNA, protein, phenotype) can resolve many problematic issues in systematics such as cryptic diversity and incongruence between datasets. Vipers in the genus *Bitis* are widely distributed throughout much of sub-Saharan Africa, filling a variety of ecological niches and presenting an important public health problem. However, evolutionary relationships among this medically and ecologically important genus have not been fully resolved due to inadequate taxon sampling and lack of informative characters. The authors conducted the first phylogenetic study incorporating complete sampling of known species within the genus *Bitis*. Using morphological, molecular, and combined approaches under multiple criteria, they recovered many of the species groups detected by previous investigators, further validating four currently recognized subgenera. *Bitis arietans* and *Bitis worthingtoni* appear to be early-diverging, monotypic lineages, while the "big *Bitis*" group and the small southern African species form distinct clades. Although this study provides additional information regarding the interspecific relationships within *Bitis*, the placement of *Bitis albanica*, *Bitis heraldica*, and *Bitis inornata* remains problematic. This study enhances our understanding of the evolutionary history of species within the genus *Bitis* incorporating a combined evidence approach to phylogenetics.

FIRE ANTS AND CAIMAN NESTS

M. V. Parachú Marcó et al. [2015, J. Herpetology 49(1):70-74] note that flooding and predation are the two major causes for the decline in hatching rate and hatchling survival in crocodilians. Recently, *Solenopsis invicta* (red fire ant) has been recognized as a formidable invasive species, causing changes in wild populations of reptiles. Because of the elevated densities of red fire ants present in *Caiman latirostris* (broad-snouted caiman) nests during the breeding season, experiments in captivity and in the wild were performed to verify if the presence of *S. invicta* affects nest success or care of eggs and the hatching-assistance behavior of *C. latirostris* females. Hatchling survival from eggs incubated in a lab setting in the presence of red fire ants decreased by approximately 10% compared to nests without ants. In a second experiment performed in the wild, the presence of red fire ant resulted in a 43% reduction in nest success including direct (14.5%) and indirect (28.5%) effects. This study confirmed that red fire ants negatively affect *C. latirostris* nest success, directly because the ants attack and cause the hatchling's death after pipping and indirectly by preventing females from caring for eggs, providing hatching assistance, and maintaining nests.

TO OVERWINTER OR NOT TO OVERWINTER?

J. E. Lovich et al. [2014, Herpetological Monographs 28: 93-109] studied hatchling emergence patterns in a community of six species of freshwater turtles in Lancaster County, Pennsylvania, including: *Chelydra serpentina*, *Chrysemys picta*, *Clemmys guttata*, *Glyptemys insculpta*, *Glyptemys muhlenbergii*, and *Sternotherus odoratus*. Data were collected every year from 1965 through 1985 on estimated date of emergence, carapace length, April–May precipitation, August–September precipitation, annual precipitation, and low temperature and occurrence of precipitation during the 24 h prior to the time of each hatchling detection ($n = 806$). *Chelydra serpentina*, *Ch. picta*, and *Cl. guttata* hatchlings have a facultative delayed emergence strategy. The other species (*G. insculpta*, *G. muhlenbergii*, and *S. odoratus*) appear to be obligate early emergers, with the exception of one hatchling *G. muhlenbergii* that delayed emergence. Early emergence occurred in some species every year. However, the majority of hatchlings delayed emergence until the year following oviposition, except in 1973, the year following intense flooding and nest destruction associated with a major hurricane. Mean estimated calendar day of emergence varied annually in *C. serpentina* and *Ch. picta*. The same variable also differed among species for comparisons of both early and delayed emergence. *Chelydra serpentina* hatchlings emerged earlier than all other species whether they used an early or delayed strategy. Carapace length of *Ch. picta* hatchlings varied significantly among years, and *C. serpentina* hatchlings that delayed emergence were significantly larger in carapace length than those that emerged early. Seasonal and previous 24-h precipitation had varying effects on the number of emerging hatchlings, but August–September precipitation in one year had a strong correlation with the number of hatchlings that delayed emergence until the following spring. The number of hatchlings detected peaked at a previous 24-h air temperature of about 12°C for both early and late emergence. Small species like *G. muhlenbergii* and *S. odoratus* may emerge early to limit potential hatchling competition in diverse communities of freshwater turtles with primarily delayed emergence.

CHEMORECEPTION IN AN AMPHISBAENIAN

P. López et al. [2014, J. Herpetology 48(4):514-517] note that foraging underground poses a number of important challenges for fossorial animals, such as amphisbaenians. For instance, visual detection and identification of prey is often hampered by low light conditions and poor eye sight. In response, many fossorial animals have switched to other sensory systems, such as chemoreception. This study tested the ability of the amphisbaenian *Trogonophis wiegmanni* to detect and discriminate between different prey types based on chemical cues alone. Results of a laboratory experiment showed that amphisbaenians were able to detect prey using chemoreception, as indicated by an increase in chemosensory tongue-flick responses to swabs bearing chemicals from prey in comparison with blank controls. Also, differential tongue-flick rates to chemicals from different prey types indicated that at least some prey types may be discriminated from others based on chemosensory cues. These results suggest that *T. wiegmanni* amphisbaenians use chemoreception when foraging.

AGGREGATION IN DUVAUCEL'S GECKOS

M. Barry et al. [2014, Herpetologica 70(4):395-406] note that little information on the behavioral ecology and social organization of New Zealand's diplodactylid geckos is available. At least two species may be gregarious and share shelters, but data on the extent and possible function of this behavior are lacking. The authors examined the spatial distribution patterns of Duvaucel's geckos (*Hoplodactylus duvaucelii*) in diurnal retreats over the four seasons. They tested whether geckos formed aggregations more often than expected by chance, and investigated whether or not the thermal properties of used shelters, gecko body temperatures and group composition affected aggregation patterns. Duvaucel's geckos utilized a range of natural structures as diurnal shelters and showed a tendency to aggregate throughout the year (47–71% of individuals). Mixed-sex groups of up to eight individuals, including juveniles, occurred year round. Aggregations never contained more than one adult male and typically consisted of a male–female pair. Shelter-sharing adult males were larger than solitary males. Juveniles sheltered in close association with adults of either sex throughout the study. Shelter thermal properties did not appear to influence aggregative behavior. Aggregation patterns fluctuated seasonally, but the factors affecting these distribution patterns remain unclear. The occurrence of year-round shelter aggregations and frequent male–female and adult–juvenile associations indicate that this species might possess a complex social system. Further research examining the social and genetic relationships between group members, juvenile dispersal rates, and the temporal stability of aggregations is required to confirm the degree of complexity.

EFFECTS OF A COLONIZING GECKO

D. F. Hughes et al. [2015, J. Herpetology 49(1):60-63] used nightly surveys to monitor the status of building-dwelling gecko species on the southern Caribbean island of Curaçao. Two gecko species were detected in 10 counts across five nights from 18 sites. The authors recorded the nonnative wood slave, *Hemidactylus mabouia* (81%, 369/455 observations), native Dutch leaf-toed gecko, *Phyllodactylus martini* (11%, 50/455 observations), and unidentified geckos (8%, 36/455 observations) on the island. The Dutch leaf-toed gecko was most common near the forest and rare elsewhere. Wood Slave abundance was not influenced by forest proximity. Wood slaves commonly perched near lights that provided heat and attracted insect prey. In contrast, the Dutch leaf-toed gecko perched away from lights. Similar to gecko species in Florida, Wood slaves displaced Dutch leaf-toed geckos. The Dutch leaf-toed gecko was syntopic with the wood slave on buildings near the forest when resources were not limiting or if other gecko populations were not self-sustaining. As wood slave populations grew, they excluded Dutch leaf-toed geckos, and possibly Antilles geckos, *Gonatodes antillensis*, from these buildings. This exclusion adds novel obstacles to the continued survival of the Dutch leaf-toed gecko on Curaçao. A similar situation may be present on Bonaire, and for a congeneric species on Aruba, where the wood slave is a more recent colonist.

PARTHENOGENESIS IN A COPPERHEAD

M. A. Jordan et al. [2015, J. Herpetology 49(1):118-121] note that among reptiles, reproduction in the absence of males is often assumed to result from long-term sperm storage. Through the application of molecular genetic tools, biologists are beginning to recognize that facultative parthenogenesis can also explain such reproductive events in snakes. The authors observed a copperhead (*Agkistrodon contortrix*) give birth to a stillborn neonate and four infertile ova after 9 yr in isolation from male snakes. To test the hypothesis that the neonate was produced asexually, they screened a panel of 10 microsatellite loci to genotype the mother and her offspring, as well as wild-caught individuals in the mother's population of origin, to assess the probability of paternity. Confirming prior research on copperheads that suggests parthenogenesis by terminal fusion automixis, they found that four heterozygous maternal loci were homozygous in the neonate. They calculated the probability of a random male from the population as a sire to the neonate to be 2.32×10^{-13} based on the population allele frequencies and the genotype of the neonate. These results further confirm that copperheads are facultatively parthenogenetic and suggest that this reproductive mode may be general within the species.

MOSQUITO INSECTICIDES AND TADPOLES

L. R. Pauley et al. [2015, J. Herpetology 49(1):28-35] note that in the case of contaminants that are commercially available and introduced by humans, understanding where and how often a product is used is critical in assessing its ecological impact. Contextualizing a product's ecotoxicological impact with details regarding its application can provide a more complete characterization of the product's environmental risk than is possible with ecotoxicological data alone. The authors conducted an ecotoxicology experiment to examine the interaction between predator-induced stress and one of three common mosquito insecticide formulations (Mosquito Dunks, Mosquito Bits, and Mosquito Torpedoes) on the performance of gray treefrog (*Hyla versicolor*) tadpoles and changes in aquatic communities in pond mesocosms. Then, to describe the extent to which each product was applied in the region surrounding our study area, they conducted a survey of mosquito insecticide practices by individuals who owned or managed property within U.S. Environmental Protection Agency region seven. When applied in the presence of predators, Mosquito Torpedo use resulted in the lowest tadpole survival rates. Mosquito Dunks also reduced tadpole survival when applied in the context of predators ($P = 0.06$), and Mosquito Bits had no effect on tadpole survival. Of land managers who applied a mosquito insecticide, 5% used Mosquito Bits, 5% used Mosquito Torpedoes, and 81% used Mosquito Dunks. Despite the fact that Mosquito Torpedoes appear to have more severe negative effects on tadpole survival than do Mosquito Dunks, the widespread use of Mosquito Dunks by individuals in their survey leads the authors to recommend that future research efforts be directed toward Mosquito Dunks.

DESERT TORTOISE MANAGEMENT STRATEGIES

K. H. Berry et al. [2014, Herpetological Monographs 28:66-92] surveyed an area of ~260 km² in the western Mojave Desert to evaluate relationships between condition of Agassiz's desert tortoise populations (*Gopherus agassizii*) and habitat on lands that have experienced three different levels of management and protection. They established 240 1-ha plots using random sampling, with 80 plots on each of the three types of managed lands. They conducted surveys in spring 2011 and collected data on live tortoises, shell-skeletal remains, other signs of tortoises, perennial vegetation, predators, and evidence of human use. Throughout the study area and regardless of management area, tortoise abundance was positively associated with one of the more diverse associations of perennial vegetation. The management area with the longest history of protection, a fence, and legal exclusion of livestock and vehicles had significantly more live tortoises and lower death rates than the other two areas. Tortoise presence and abundance in this protected area had no significant positive or negative associations with predators or human-related impacts. In contrast, the management area with a more recent exclusion of livestock, limited vehicular traffic, and with a recent, partial fence had lower tortoise densities and high death rates. Tortoise abundance here was negatively associated with vehicle tracks and positively associated with mammalian predators and debris from firearms. The management area with the least protection—unfenced, with uncontrolled vehicle use, sheep grazing, and high trash counts—also had low tortoise densities and high death rates. Tortoise abundance was negatively associated with sheep grazing and positively associated with trash and mammalian predator scat.

CHICKEN TURTLES IN ARKANSAS

S. A. Dinkelacker and N. L. Hilzinger [2014, J. Herpetology 48(4):439-444] note that the chicken turtle, *Deirochelys reticularia*, is an understudied species despite the fact that it is distributed across much of the southeastern United States. In addition, no previous study has been conducted on the western subspecies, *D. r. miaria*, even though it is considered rare and possibly in decline within portions of its range. A capture–recapture study was conducted over 3 yr on a population of *D. r. miaria* in central Arkansas to determine demographic and reproductive characteristics. The population approached a male bias (1.9:1) and consisted of few total individuals ($N = 42$). Reproductive traits, including clutch, egg, and hatchling size, appear to be similar between *D. r. miaria* and eastern populations. Annual survival estimates were similar among males, females, and juveniles (0.70, 0.70, and 0.69, respectively) and did not change over the course of the study. Although low compared with most turtles, similar results have been reported for other populations of *D. reticularia*, which suggests that the species may have a different life-history strategy than that of most other chelonians. Due to this difference, management practices are likely to affect *D. r. miaria* differently from other turtle species.

Unofficial Minutes of the CHS Board Meeting, March 13, 2015

President John Archer called the meeting to order at 7:34 P.M.
Board member Aaron LaForge was absent.

Officers' Reports

President: John Archer regretfully informed the board that due to unforeseen circumstances, ReptileFest has been canceled this year. John said that it is not feasible to reschedule this year, and that we must find a new venue for 2016.

Recording Secretary: Minutes of the February 13 board meeting were read and approved.

Treasurer: Mike Dloogatch presented the financial report.

Sergeant-at-arms: Dick Buchholz informed the board that there were 36 people at the February meeting.

Committee Reports

Shows:

- Notebaert Nature Museum, first full weekend of each month.
- NARBC, Tinley Park Convention Center, March 14–15.
- Chicagoland Family Pet Expo, Arlington Racetrack, March 20–22.
- Family Time Magazine Kids Expo, Tinley Park Convention Center, March 28–29.

Junior herpers: Kevin Loubi spoke about native herps at the March meeting. There will be no April meeting due to Easter, but there will be a field trip to Brookfield Zoo on April 4 for a behind-the-scenes tour of reptile exhibits.

Adoptions: Colleen listed a few animals that have come in for adoption.

Herp of the month: March theme is “green.”

Library: Teresa Savino is still looking for helpers.

Old business

Storage options: Teresa Savino has found a facility with a gated lot suitable for storing the CHS trailer.

Rules for Adoption: Ed Huether is working on a written adoptions form.

Round Table

Teresa Savino got to have her iguanas outside in her screened-in porch.

Erica Mede got Engaged!

Dick Buchholz has been having good success with the cookie jar to accept donations at shows.

Colleen Schwarz got a blue-tongued skink.

John Archer's daughter Grace got a summer job/internship at a Banfield Pet Hospital at a PetSmart.

Meeting adjourned at 8:49 P.M.

Respectfully submitted by Rachel Fessler

Advertisements

For sale: **highest quality frozen rodents.** I have been raising rodents for over 30 years and can supply you with the highest quality mice available in the U.S. These are always exceptionally clean and healthy with no urine odor or mixed in bedding. I feed these to my own reptile collection exclusively and so make sure they are the best available. All rodents are produced from my personal breeding colony and are fed exceptional high protein, low fat rodent diets; no dog food is ever used. Additionally, all mice are flash frozen and are separate in the bag, not frozen together. I also have ultra low shipping prices to most areas of the U.S. and can beat others shipping prices considerably. I specialize in the smaller mice sizes and currently have the following four sizes available: Small pink mice (1 day old—1 gm) , \$25 /100; Large pink mice (4 to 5 days old—2 to 3 gm), \$27.50 /100; Small fuzzy mice (7 to 8 days old—5 to 6 gm), \$30/100; Large fuzzy mice / hoppers (10 to 12 days old—8 to 10 gm), \$35/100 Contact Kelly Haller at 785-234-3358 or by e-mail at kelhal56@hotmail.com.

For sale: Captive-bred Rosy Boas. Forty-year C.H.S. member is selling 2011 and 2013 healthy and excellent feeding offspring. Special “cheap” prices to C.H.S. members. Arrangements can be made for delivery to southern Wisconsin or northern Illinois. Phone (608) 427-3864 or email zartenfour@mwt.net.

For sale: Standard 24" Neodesha reptile cages, 3 × 6" vent on top, tempered glass front. Like new condition, no burns or stains, original glass. These cages do not have the dam (horizontal molding that crosses the entire front width of the cage, used to hold back bedding material)—easier to clean without the dam. About 20 currently available, \$45 each. Linda Malawy, (630) 717-9955, linda_malawy@hotmail.com.

For sale: High quality, all locally captive-hatched tortoises, all bred and hatched here in the upper Midwest. Baby leopards, Sri Lankan stars, and pancakes usually available, and are all well-started and feeding great! Leopards are \$125 ea., Sri Lankans (2012 hatched) \$475 ea. And Pancakes are \$195 ea. Leopards for out of state sale/shipping require a veterinary health certificate (inquire for cost). E-mail at KKranz1@wi.rr.com or call Jim or Kirsten at 262 654 6303.

Herp tours: **Costa Rica herping adventures.** Join a small group of fellow herpers for 7 herp-filled days. We find all types of herps, mammals, birds and insects, but our target is snakes. We average 52 per trip, and this is our 10th year doing it. If you would like to enjoy finding herps in the wild and sleep in a bed at night with air-conditioning, hot water and only unpack your suitcase once, instead of daily, then this is the place to do it. Go to our web-site <http://hiss-n-things.com> and read the highlights of our trips. Read the statistics of each trip and visit the link showing photos of the 40 different species we have found along the way. E-mail at jim.kavney@gmail.com or call Jim Kavney, 305-664-2881.

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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, April 29, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. The meeting will feature **Scott Ballard** of the **Illinois Department of Natural Resources**. Mr. Ballard is the author of the **Illinois Herptiles-Herps Act** that went into effect the beginning of this year. Everyone in Illinois who owns a reptile or amphibian or enjoys field herping needs to review this new law, but it's particularly important for breeders, native animal keepers, and keepers of large or venomous animals. Talk with the man who wrote the law.

The program for the May 27 meeting has yet to be decided.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

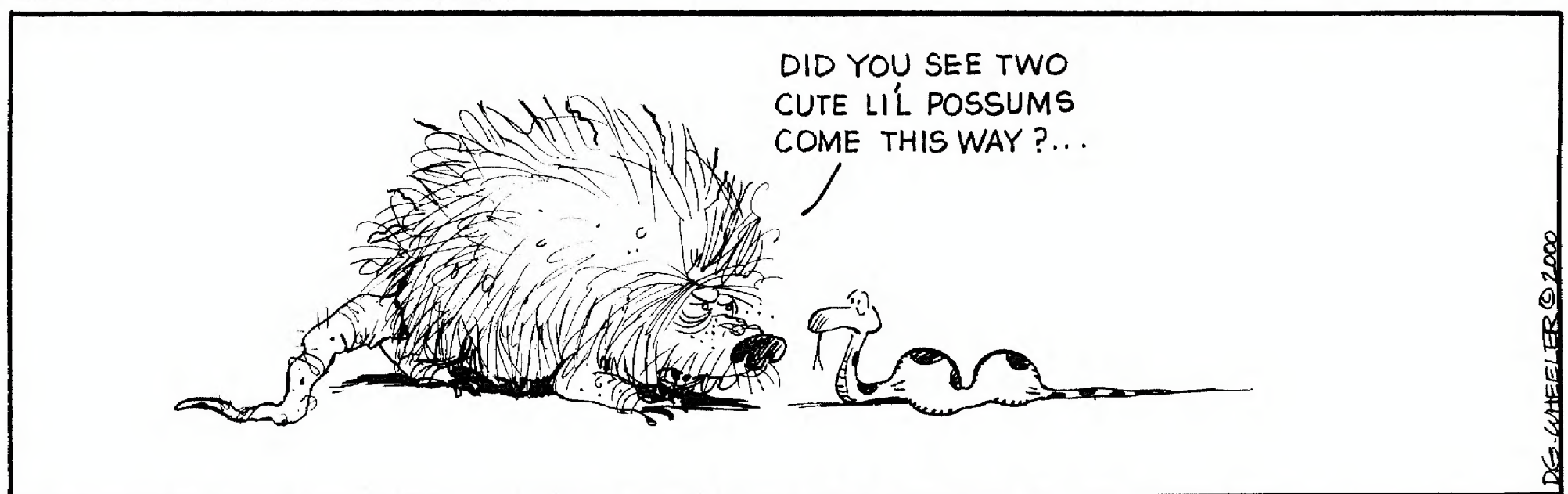
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., Friday, May 15, 2015, at the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the group's Facebook page.

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